ASSIGNMNET A1_PART A

1. Prime sum calculation

ShakerKhati_02240270_A1_PA.py

```python
def is_prime(n):
    "Check if a number is prime."
    if n < 2:
        return False
    for i in range(2, int(n ** 0.5) + 1):
        if n % i == 0:
            return False
    return True

def sum_of_primes(start, end):
    "Calculate sum of prime numbers in given range."
    try:
        start, end = int(start), int(end)
        if start > end:
            start, end = end, start
        primes_sum = sum(num for num in range(start, end + 1) if is_prime(num))
        return f"Sum of primes between {start} and {end}: {primes_sum}"
    except ValueError:
        return "Error: Please enter valid integers"
```

Code output:

```
Enter your choice: 1
Enter start range: 3
Enter end range: 9
Sum of primes between 3 and 9: 15

Would you like to try another function? (y/n):
```

2. Length converter

```python
def length_converter(value, unit):
    "Convert between meters and feet."
    try:
        value = float(value)
        if unit.upper() == 'M':
            return f"{value} meters = {round(value * 3.28084, 2)} feet"
        elif unit.upper() == 'F':
            return f"{value} feet = {round(value / 3.28084, 2)} meters"
        else:
            return "Error: Invalid unit (use 'M' for meters or 'F' for feet)"
    except ValueError:
        return "Error: Please enter a valid number"
```

Code output:

```
Enter your choice: 2
Enter value: 50
Enter unit (M/F): M
50.0 meters = 164.04 feet

Would you like to try another function? (y/n): y
```

3. Consonants Counter

```python
def count_consonants(text):
    "Count consonants in a string."
    if not isinstance(text, str):
        return "Error: Please enter a valid string"
    consonants = "bcdfghjklmnpqrstvwxyz"
    count = sum(1 for char in text.lower() if char in consonants)
    return f"Number of consonants: {count}"
```

Code output:

```
Enter your choice: 3
Enter a string: A quick brown fox jumps over the lazy dog
Number of consonants: 22

Would you like to try another function? (y/n):
```

4. Min-Max finder

```python
def min_max_finder():
    "Find minimum and maximum numbers from user input."
    try:
        count = int(input("How many numbers would you like to ENTER? "))
        if count <= 0:
            return "Error: Please enter a positive number"

        numbers = []
        for i in range(count):
            num = float(input(f"Enter number {i+1}: "))
            numbers.append(num)

        return f"Smallest: {min(numbers)}, Largest: {max(numbers)}"
    except ValueError:
        return "Error: Please enter valid numbers"
```

Code output:

```
Enter your choice: 4
How many numbers would you like to ENTER? 5
Enter number 1: 6564874
Enter number 2: 3168153
Enter number 3: 3654312
Enter number 4: 354135
Enter number 5: 3545413
Smallest: 354135.0, Largest: 6564874.0

Would you like to try another function? (y/n):
```

5. **Palindrome checker**

```python
def palindrome_checker(text):


    "Check if a string is a palindrome."
    if not isinstance(text, str):
        return "Error: Please enter a valid string"

    cleaned_text = ''.join(char.lower() for char in text if char.isalnum())
    is_palindrome = cleaned_text == cleaned_text[::-1]

    if is_palindrome:
        return "Great Job! It's a palindrome."
    else:
        return "No, it's not a palindrome."
```

Code output:

```
Enter your choice: 5
Enter a string: level
Great Job! It's a palindrome.

Would you like to try another function? (y/n):
```

6. Word Counter

```python
def word_counter(filename):
    "Count specific words in a text file."
    target_words = ["the", "was", "and"]
    try:
        with open(filename, 'r') as file:
            text = file.read().lower()
            counts = {word: text.split().count(word) for word in target_words}
            return "\n".join(f"'{word}': {count}" for word, count in counts.items())
    except FileNotFoundError:
        return "Error: File not found"
```

Code output:

```
Enter your choice: 6
Enter filename: story.txt
'the': 15
'was': 7
'and': 7

Would you like to try another function? (y/n):
```

Display menu

Input Code:

```
def main():
    while True:
        print("\nSelect a function (1-7):")
        print("1. Calculate the sum of prime numbers")
        print("2. Convert length units")
        print("3. Count consonants in string")
        print("4. Find min and max numbers")
        print("5. Check for palindrome")
        print("6. Word Counter")
        print("7. Exit program")

        choice = input("\nEnter your choice: ")

        if choice == '1':
            start = input("Enter start range: ")
            end = input("Enter end range: ")
            print(sum_of_primes(start, end))

        elif choice == '2':
            value = input("Enter value: ")
            unit = input("Enter unit (M/F): ")
            print(length_converter(value, unit))

        elif choice == '3':
            text = input("Enter a string: ")
            print(count_consonants(text))

        elif choice == '4':
            print(min_max_finder())

        elif choice == '5':
            text = input("Enter a string: ")
            print(palindrome_checker(text))
```

```
117
118         elif choice == '6':
119             filename = input("Enter filename: ")
120             print(word_counter(filename))
121
122         elif choice == '7':
123             print("Thank you for using the program!")
124             break
125
126         else:
127             print("Invalid choice. Please enter a number between 1 and 7.")
128
129         if input("\nWould you like to try another function? (y/n): ").lower() != 'y':
130             print("Thank you for using the program!")
131             break
132
133 if __name__ == "__main__":
134     main()
135
```

Code output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

PS C:\CSF assignment> python .\ShakerKhati_02240270_A1_PA.py

Select a function (1-7):
1. Calculate the sum of prime numbers
2. Convert length units
3. Count consonants in string
4. Find min and max numbers
5. Check for palindrome
6. Word Counter
7. Exit program

Enter your choice:
```

ASSIGNMNET A1 PART B

1. Guess the number game

```python
import random

def guess_number_game():
    print("\n=== Guess the Number Game ===")
    secret_number = random.randint(1, 100)
    attempts = 0
    max_attempts = 10

    print("I'm thinking of a number between 1 - 100.")
    print(f"You have {max_attempts} attempts to guess it.TRY YOUR LUCK MY FRIEND!!!")

    while attempts < max_attempts:
        try:
            guess = int(input("\nEnter your guess: "))
            attempts += 1

            if guess < 1 or guess > 100:
                print("Please enter a number between 1 - 100.")
                continue

            if guess == secret_number:
                print(f"\nCongratulations! You guessed it in {attempts} attempts!")
                return
            elif guess < secret_number:
                print("Too low! Give another TRY. U can DO IT.")
            else:
                print("Too high! Give another TRY. U can DO IT..")

            print(f"Attempts remaining: {max_attempts - attempts}")

        except ValueError:
            print("Please enter a valid number.")

    print(f"\nGame Over! The number was {secret_number}")

```

Code output:

```
=== Guess the Number Game ===
I'm thinking of a number between 1 - 100.
You have 10 attempts to guess it.TRY YOUR LUCK MY FRIEND!!!

Enter your guess: 50
Too high! Give another TRY. U can DO IT..
Attempts remaining: 9

Enter your guess: 40
Too high! Give another TRY. U can DO IT..
Attempts remaining: 8

Enter your guess: 30
Too high! Give another TRY. U can DO IT..
Attempts remaining: 7

Enter your guess: 10
Too low! Give another TRY. U can DO IT.
Attempts remaining: 6

Enter your guess: 15
Too low! Give another TRY. U can DO IT.
Attempts remaining: 5

Enter your guess: 21
Too low! Give another TRY. U can DO IT.
Attempts remaining: 4

Enter your guess: 25

Congratulations! You guessed it in 7 attempts!

Would you like to try another game? (y/n):
```

2. Rock Paper Scissors Game

```python
def rock_paper_scissors():
    print("WELCOME TO - Rock Paper Scissors Game" )
    choices = {
        'r': 'rock',
        'p': 'paper',
        's': 'scissors',
        'rock': 'rock',
        'paper': 'paper',
        'scissors': 'scissors'
    }
    player_score = 0
    computer_score = 0

    while True:
        print(f"\nScore - You: {player_score} Computer: {computer_score}")
        print("\nChoose: rock(r), paper(p), or scissors(s)")
        player_input = input("Your choice: ").lower()

        if player_input not in choices:
            print("Invalid choice! Please use 'r', 'p', 's' or 'rock', 'paper', 'scissors'")
            continue

        player_choice = choices[player_input]
        computer_choice = random.choice(['rock', 'paper', 'scissors'])

        print(f"\nComputer chose: {computer_choice}")
        print(f"You chose: {player_choice}")
```

```python

        if player_choice == computer_choice:
            print("It's a DRAW!")
        elif (player_choice == 'rock' and computer_choice == 'scissors') or \
             (player_choice == 'paper' and computer_choice == 'rock') or \
             (player_choice == 'scissors' and computer_choice == 'paper'):
            print("You win!")
            player_score += 1
        else:
            print("Computer wins!")
            computer_score += 1

        if input("\n do you Want to Play again? (y/n): ").lower() != 'y':
            print(f"\nFinal Score - You: {player_score} Computer: {computer_score}")
            if player_score > computer_score:
                print("Congratulations! You won the series!")
            elif player_score < computer_score:
                print("Computer won the series!")
            else:
                print("The series was a tie!")
            break

```

```python
def main():
    while True:
        print("\n" + "="*40)
        print("Welcome to the Game Center!")
        print("="*40)
        print("\nSelect a game:")
        print("1. Guess Number Game")
        print("2. Rock Paper Scissors")
        print("3. Exit")
        print("="*40)

        choice = input("\nEnter your choice (1-3): ")

        if choice == '1':
            guess_number_game()
        elif choice == '2':
            rock_paper_scissors()
        elif choice == '3':
            print("\nThanks for playing! Goodbye!")
            break
        else:
            print("Invalid choice. Please enter 1, 2, or 3.")

        if input("\nWould you like to try another game? (y/n): ").lower() != 'y':
            print("\nThanks for playing! Goodbye!")
            break

if __name__ == "__main__":
    main()
```

Code output:

```
Enter your choice (1-3): 2
WELCOME TO - Rock Paper Scissors Game

Score - You: 0 Computer: 0

Choose: rock(r), paper(p), or scissors(s)
Your choice: p

Computer chose: rock
You chose: paper
You win!

 do you Want to Play again? (y/n): y

Score - You: 1 Computer: 0

Choose: rock(r), paper(p), or scissors(s)
Your choice: r

Computer chose: scissors
You chose: rock
You win!

 do you Want to Play again? (y/n): n

Final Score - You: 2 Computer: 0
Congratulations! You won the series!
```

Display Menu

```python
def main():
    while True:
        print("\n" + "="*40)
        print("Welcome to the Game Center!")
        print("="*40)
        print("\nSelect a game:")
        print("1. Guess Number Game")
        print("2. Rock Paper Scissors")
        print("3. Exit")
        print("="*40)

        choice = input("\nEnter your choice (1-3): ")

        if choice == '1':
            guess_number_game()
        elif choice == '2':
            rock_paper_scissors()
        elif choice == '3':
            print("\nThanks for playing! Goodbye!")
            break
        else:
            print("Invalid choice. Please enter 1, 2, or 3.")

        if input("\nWould you like to try another game? (y/n): ").lower() != 'y':
            print("\nThanks for playing! Goodbye!")
            break

if __name__ == "__main__":
    main()
```

Code output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS

========================================
Welcome to the Game Center!
========================================

Select a game:
1. Guess Number Game
2. Rock Paper Scissors
3. Exit
========================================

Enter your choice (1-3):
```

Repo Link: *https://github.com/shaker202518/ShakerKhati_02240270_A1.git*